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space capacitively, thereby feeding said at least two electrodes by one of DC, AC, AC+DC, pulsed DC and Rf.

29. (New) The method of claim 19, further comprising monitoring an actual value of density of said plasma and negative-feedback controlling said density by adjusting an induction field generated by said coil within said plasma.

### REMARKS

The rejection of Claims 1-12 under 35 USC §112, ¶ 2 is deemed moot in light of the elimination of the term "self-contained body" in the claims now in the case. Likewise, the terms "envisioned" and "preferably" have also been eliminated.

The rejection of Claims 1-3 as being anticipated by Donohoe under 35 USC §102(b) is traversed. Reconsideration and clarification of this rejection are solicited in view of the inconsistent rejection of Claims 1-3, as well as Claims 4 and 10, on grounds that it would have been obvious to modify Donohoe in view of Ishimaru to yield the claimed subject matter. Either Donohoe anticipates the subject matter of Claims 1-3 or it does not. The Office Action takes an inconsistent position that frustrates a complete response.

In any event, we believe it is fair to say that the Donohoe method does not even remotely suggest the use of a vacuum chamber as set forth in Claim 13 or the manufacturing method in Claim 19. In particular, the Donohoe patent uses, as seen in Fig. 3, a screen body or shield mounted outside a wall 10A of the vacuum chamber or reactor 10. Thus, the screen 17 cannot protect the inner

surface of the bell jar wall 10A, and is not the vacuum treatment chamber of Claim 13. In the present invention, the inner surface of the hollow screen body is freely exposed to the plasma treatment space. This is significant because any material which is freed during the plasma treatment of a workpiece, as by sputtering or another technique of coating or by etching, is not going to be deposited on the inside wall of the vacuum chamber. Rather, it will be deposited on the inside surface of the screen body. Because screening is directed on material deposition being screened from the inside surface or wall of the vacuum chamber and the screen body is made of a single body, the advantage is that the screen body can be easily replaced whenever, on its inner surface, material has deposited to an extent that it might negatively affect the treatment process.

The present invention has other considerable advantages, keeping in mind that one and the same screen body is intended to be used with different kinds of workpiece surface treatments. During the treatment of a workpiece, such as by coating material or by etched material, an electrically conductive layer may deposit on the inner surface of the screen body. The conditions will not change thereby if the screen body *per se* is made of electroconductive material, but the conditions will most certainly change if the screen body is not made of electroconductive material, e.g., of dielectric material. One has the choice to select either materials. In both cases, whether the screen body being of metal or of a non-conductive material, at least the inner surface of that body can become electrically conductive due to a respective material depositing thereon during treatment.

In the present invention, as claimed, a coil surrounds the treatment space but is situated outside the screen body, the inner surface thereof being freely exposed to the treatment space. Due to an induction field, consequential eddy currents will be induced into the electrically conductive material of the body or on the body, as explained in connection with Fig. 2, and will significantly reduce the effectiveness of the coupling of the induction field of the coil into the treatment space for at least adding to the plasma generation (adding if additionally the plasma is generated by capacitive electrodes). Thus, eddy currents that would otherwise occur are prevented from developing by virtue of the dense pattern of longitudinally extending slots.

Donohoe is not even remotely suggestive of the foregoing approach and its attendant advantages. For that reason alone, the rejection of Claims 1-4 and 10 as being unpatentable over Donohoe in view of Ishimaru under 35 USC §103(a) is traversed. Reconsideration is appropriate on grounds that the Office Action does not set forth a *prima facie* case of obviousness based upon substantial record evidence. The general statement of objective in Ishimaru (col. 2, lines 18-21) has no specific reference to the motivation for grounding the shielding plate 50. Ishimaru merely states that the shielding plate is grounded (col. 5, line 33). The Office Action supplies the alleged motivation with the use of impermissible hindsight.

Neither Donohoe nor Ishimaru teach or suggest the following features that characterize the present invention:

A one-piece screen that is easily replaceable;

an inner surface of the hollow screen body freely exposed to the treatment space to collect process material and to prevent such material from depositing on the inner surface of the vacuum chamber wall which can have a complex shape and be much more difficult to clean than the inner surface of the screen body; and

irrespective of whether the screen body is electroconductive or non-electroconductive, a dense pattern of through-slots substantially extending coaxially to the axis of the induction coil prevents large- and small-area eddy currents, thereby improving coupling efficiency of an induction field into the treatment space where the plasma is to be generated even if a conductive coating is building up on the inner surface of the hollow screen body.

Only impermissible hindsight would allow one to suggest that Donohoe and Ishimaru would have led to the present invention when it is recognized that Donohoe only teaches providing, outside the vacuum treatment chamber, a hollow screen body whose inner surface is not freely exposed to the treatment space. Instead, between that inner surface and the treatment space, the vacuum-encapsulating wall of the treatment chamber is located. As Ishimaru only teaches a hollow screen body which is provided within a spacing gap between vacuum bell jar 2 and external bell jar 20, Ishimaru hypothetically combined with Donohoe would not result in the hollow screen body being arranged in the vacuum treatment chamber as claimed. Nor does Ishimaru's hollow screen body have an inner surface freely exposed to the treatment space.

For similar reasons, the rejection of Claims 5 and 6 as being unpatentable over Donohoe in view of Ishimaru and further in view of Hull, and the rejection of Claims 7-9, 11 and 12 as being unpatentable over those three patents and further in view of Nihei et al., both under 35 USC §103(a), are traversed.

Hull teaches nothing more than a complicated arrangement of tubing which is freely exposed to the treatment space 22. Such structure is even more expensive and far harder to clean than a generic inner surface of a vacuum bell jar or chamber wall. Nihei et al. does not even teach the use of a hollow screen body and is a totally irrelevant sputtering apparatus and method. Only impermissible hindsight would have led to the consideration of these documents.

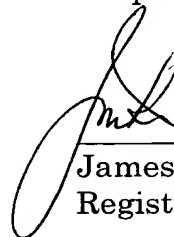
Reconsideration of the rejections and favorable action on this application are thus earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #622/49809).

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Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES**

**IN THE CLAIMS:**

2. (Amended) The vacuum treatment chamber of claim [1] 13,  
wherein  $S \geq 1$ .

3. (Amended) The vacuum treatment chamber of claim [1] 13,  
wherein the slots have a width  $d$ , wherein  $d \leq 2$  mm.

4. (Amended) The vacuum treatment chamber of claim [1] 13,  
wherein the screen comprises metal and is connected with an electrical reference  
potential.